ABSTRACT

In order to provide a high-accuracy long-life hydrodynamic bearing not causing oil film breakage in bearing clearances and a disc rotation apparatus using the bearing, when the outside diameter of the herringbone pattern of dynamic pressure generation grooves provided on at least one of the opposed faces of a flange and a thrust plate is designated as d1o, the inside diameter thereof is designated as d1i and the diameter of the turn-back part thereof is designated as d1m, the diameter d1m of the turn-back part is set so as to satisfy the relationships represented by the following equations:

$$d1m = dsy - (dsy - d1i) \times A \text{ and}$$

$$dsy = \{(d1i^2 + d1o^2)/2\}^{1/2}$$

wherein A is a value in the range of 0.05 or more to less than 1.0. In addition, oil or the base oil of grease to be filled in the hydrodynamic bearing has a kinematic viscosity of 4 cSt or more at 40° C of temperature, and one of the outer circumference of a sleeve 1 and the outer circumference of a shaft 2 is secured to a base 6 and the other is secured to a hub rotor 7.